

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:  
a semiconductor layer made of active polycrystalline silicon;  
an insulating layer made of silicon oxide; and  
an interface layer made of silicon nitride and provided between the semiconductor layer and the insulating layer.

2. A semiconductor device according to Claim 1, wherein the interface layer has a thickness of 5 to 10 nm.

3. A method of manufacturing a semiconductor device comprising:

processing the surface of a semiconductor layer made of active polycrystalline silicon with plasma by using an ammonia gas and silane gas to form an interface layer made of silicon nitride on the surface of the semiconductor layer; and

processing the interface layer with plasma by using a nitrous gas and silane gas to form an insulating layer made of silicon oxide on the interface layer.

4. A method of manufacturing a semiconductor device according to Claim 3, wherein the plasma processing using an

ammonia gas and silane gas is performed by discharge at a frequency higher than 13.56 MHz.

5. A method of manufacturing a semiconductor device according to Claim 3, wherein the plasma processing is performed by using an ammonia gas and silane gas with a bias potential applied to an insulating substrate on which the semiconductor layer is formed.